

<b>STN</b>	<b>Nízkonapäťové spínacie a riadiace zariadenia. Časť 5-3: Prístroje riadiacich obvodov a spínacie prvky. Požiadavky na bezdotykové prístroje s definovaným správaním v podmienkach poruchy (PDDB).</b>	<b>STN EN 60947-5-3</b>  35 4101
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Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Obsahuje: EN 60947-5-3:2013, IEC 60947-5-3:2013

Oznámením tejto normy sa od 10.9.2016 ruší  
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English version

**Low-voltage switchgear and controlgear -  
Part 5-3: Control circuit devices and switching elements -  
Requirements for proximity devices with defined behaviour  
under fault conditions (PDDB)  
(IEC 60947-5-3:2013)**

Appareillage à basse tension -  
Partie 5-3: Appareils et éléments de  
commutation pour circuits de commande -  
Exigences pour dispositifs de détection de  
proximité à comportement défini dans des  
conditions de défaut (PDDB)  
(CEI 60947-5-3:2013)

Niederspannungsschaltgeräte -  
Teil 5-3: Steuergeräte und Schaltelemente  
-  
Anforderungen für Näherungsschalter mit  
definiertem Verhalten unter  
Fehlerbedingungen (PDDB)  
(IEC 60947-5-3:2013)

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Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**CEN-CENELEC Management Centre: Avenue Marnix 17, B - 1000 Brussels**

## Foreword

The text of document 17B/1821/FDIS, future edition 2 of IEC 60947-5-3, prepared by SC 17B "Low-voltage switchgear and controlgear" of IEC/TC 17 "Switchgear and controlgear" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60947-5-3:2013.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2014-06-10
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2016-09-10

This document supersedes EN 60947-5-3:1999.

EN 60947-5-3:2013 includes the following significant technical changes with respect to EN 60947-5-3:1999:

- a) general principles of EN 61508 series;
- b) classification according to the requirements of EN 62061;
- c) classification according to EN ISO 13849-1.

This European Standard is to be read in conjunction with EN 60947-1, *Low-voltage switchgear and controlgear – Part 1: General rules* and EN 60947-5-2, *Low-voltage switchgear and controlgear – Part 5-2: Control circuit devices and switching elements - Proximity switches*. The provisions of Part 1 and Part 5-2 are only applicable to this European Standard where specifically called for. The numbering of the subclauses of this European Standard is sometimes not continuous because it is based on the numbering of the subclauses of EN 60947-1 or EN 60947-5-2.

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This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For the relationship with EU Directive(s), see informative Annex ZZ, which is an integral part of this document.

This European Standard does not deal with any specific requirements on noise as the noise emission of control circuit devices and switching elements is not considered to be a relevant hazard.

## Endorsement notice

The text of the International Standard IEC 60947-5-3:2013 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60068-2-6:2007	NOTE	Harmonized as EN 60068-2-6:2008 (not modified).
IEC 60068-2-14:2009	NOTE	Harmonized as EN 60068-2-14:2009 (not modified).
IEC 60068-2-27:2008	NOTE	Harmonized as EN 60068-2-27:2009 (not modified).
IEC 60204-1:2005 A1:2008	NOTE	Harmonized as EN 60204-1:2006 (modified) and EN 60204-1:2006/A1:2009 (not modified).
IEC 60364	NOTE	Harmonized in HD 384 / HD 60364 series (partially modified).
IEC 60445:2010	NOTE	Harmonized as EN 60445:2010 (not modified).
IEC 60947-5-6:1999	NOTE	Harmonized as EN 60947-5-6:2000 (not modified).
IEC 61000-3-2:2005 A1:2008 A2:2009	NOTE	Harmonized as EN 61000-3-2:2006 (not modified), EN 61000-3-2:2006/A1:2009 (not modified) and EN 61000-3-2:2006/A2:2009 (not modified).
IEC 61000-3-3:2008	NOTE	Harmonized as EN 61000-3-3:2008 (not modified).
IEC 61000-4-13:2002 A1:2009	NOTE	Harmonized as EN 61000-4-13:2002 (not modified) and EN 61000-4-13:2002/A1:2009 (not modified).
IEC 61140:2001 A1:2004	NOTE	Harmonized as EN 61140:2002 (not modified) and EN 61140:2002/A1:2006 (modified).
IEC 61165:2006	NOTE	Harmonized as EN 61165:2006 (not modified).
IEC 61326-3-1:2008	NOTE	Harmonized as EN 61326-3-1:2008 (not modified).
IEC 61496-1:2012	NOTE	Harmonized as EN 61496-1:201X <sup>1)</sup> .
IEC 61496-2:2013	NOTE	Harmonized as EN 61496-2:201X <sup>2)</sup> (not modified).
IEC 61496-3:2008	NOTE	Harmonized as CLC/TS 61496-3:2008 (not modified).
IEC 61508-4:2010	NOTE	Harmonized as EN 61508-4:2010 (not modified).
IEC 61508-5:2010	NOTE	Harmonized as EN 61508-5:2010 (not modified).
IEC 61508-6:2010	NOTE	Harmonized as EN 61508-6:2010 (not modified).
IEC 61508-7:2010	NOTE	Harmonized as EN 61508-7:2010 (not modified).

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1) At draft stage.

2) To be published.

IEC 61511	NOTE	Harmonized in EN 61511 series (not modified).
IEC 61511-1:2003	NOTE	Harmonized as EN 61511-1:2004 (not modified).
IEC 61511-2:2003	NOTE	Harmonized as EN 61511-2:2004 (not modified).
IEC 61511-3:2003	NOTE	Harmonized as EN 61511-3:2004 (not modified).
CISPR 11:2009 A1:2010	NOTE	Harmonized as EN 55011:2009 (modified) and EN 55011:2009/A1:2010 (not modified).

## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-2-1	2007	Environmental testing - Part 2-1: Tests - Test A: Cold	EN 60068-2-1	2007
IEC 60068-2-30	2005	Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle)	EN 60068-2-30	2005
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529	1991
-	-		+ corr. May	1993
+ A1	1999		+ A1	2000
IEC 60947-1	2007	Low-voltage switchgear and controlgear - Part 1: General rules	EN 60947-1	2007
+ A1	2010		+ A1	2011
IEC 60947-5-1	2003	Low-voltage switchgear and controlgear - Part 5-1: Control circuit devices and switching elements - Electromechanical control circuit devices	EN 60947-5-1	2004
-	-		+ corr. July	2005
+ A1	2009		+ A1	2009
IEC 60947-5-2	2007	Low-voltage switchgear and controlgear - Part 5-2: Control circuit devices and switching elements - Proximity switches	EN 60947-5-2	2007
+ A1	2012		+ A1	2012
IEC 61000-4-2	2008	Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	EN 61000-4-2	2009
IEC 61000-4-3	2006	Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test	EN 61000-4-3	2006
+ A1	2007		+ A1	2008
+ A2	2010		+ A2	2010
IEC 61000-4-4	2012	Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test	EN 61000-4-4	2012
IEC 61000-4-5	2005	Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test	EN 61000-4-5	2006
+ corr. October	2009			
IEC 61000-4-6	2008	Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields	EN 61000-4-6	2009

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61000-4-8	2009	Electromagnetic compatibility (EMC) - Part 4-8: Testing and measurement techniques - Power frequency magnetic field immunity test	EN 61000-4-8	2010
IEC 61000-4-11	2004	Electromagnetic compatibility (EMC) - Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests	EN 61000-4-11	2004
IEC 61131-2	2007	Programmable controllers - Part 2: Equipment requirements and tests	EN 61131-2 <sup>3)</sup>	2007
IEC 61508-1	2010	Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 1: General requirements	EN 61508-1	2010
IEC 61508-2	2010	Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 2: Requirements for electrical/electronic/programmable electronic safety-related systems	EN 61508-2	2010
IEC 61508-3	2010	Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 3: Software requirements	EN 61508-3	2010
IEC 62061 + corr. July + corr. April + A1	2005 2005 2008 2012	Safety of machinery - Functional safety of safety-related electrical, electronic and programmable electronic control systems	EN 62061 + corr. February - + A1	2005 2010 - 2013
ISO 13849-1	2006	Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design	-	-

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3) EN 61131-2 is superseded by EN 61010-2-201:2013, which is based on IEC 61010-2-201:2013.



## **Annex ZZ**

(informative)

### **Coverage of Essential Requirements of EC Directives**

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association to provide one means of conforming to Essential Requirements of the New Approach Directive for machinery 2006/42/EC.

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard confers, within the limits of the scope of this standard, a presumption of conformity with essential requirements as given in Annex I, 1.2.1 of that Directive and associated EFTA regulations.

**WARNING:** Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard.





# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

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**Low-voltage switchgear and controlgear –  
Part 5-3: Control circuit devices and switching elements – Requirements for  
proximity devices with defined behaviour under fault conditions (PDDB)**

**Appareillage à basse tension –  
Partie 5-3: Appareils et éléments de commutation pour circuits de commande –  
Exigences pour dispositifs de détection de proximité à comportement défini  
dans des conditions de défaut (PDDB)**





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# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

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**Low-voltage switchgear and controlgear –  
Part 5-3: Control circuit devices and switching elements – Requirements for  
proximity devices with defined behaviour under fault conditions (PDDB)**

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Partie 5-3: Appareils et éléments de commutation pour circuits de commande –  
Exigences pour dispositifs de détection de proximité à comportement défini  
dans des conditions de défaut (PDDB)**

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR –****Part 5-3: Control circuit devices and switching elements –  
Requirements for proximity devices with defined  
behaviour under fault conditions (PDDB)**

## FOREWORD

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International Standard IEC 60947-5-3 has been prepared by subcommittee 17B: Low-voltage switchgear and controlgear, of IEC technical committee 17: Switchgear and controlgear.

This second edition replaces the first edition published in 1999 and its amendment published in 2005. It is a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) general principles of IEC 61508 series;
- b) classification according to the requirements of IEC 62061;
- c) classification according to ISO 13849-1.

This standard is to be read in conjunction with IEC 60947-1, *Low voltage switchgear and controlgear – Part 1: General rules* and IEC 60947-5-2, *Low-voltage switchgear and*



*controlgear – Part 5-2: Control circuit devices and switching elements – Proximity switches.* The provisions of Part 1 and Part 5-2 are only applicable to this standard where specifically called for. The numbering of the subclauses of this standard is sometimes not continuous because it is based on the numbering of the subclauses of IEC 60947-1 or IEC 60947-5-2.

The text of this standard is based on the following documents:

FDIS	Report on voting
17B/1821/FDIS	17B/1826/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 60947 series, published under the general title *Low-voltage switchgear and controlgear*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

## LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

### Part 5-3: Control circuit devices and switching elements – Requirements for proximity devices with defined behaviour under fault conditions (PDDB)

#### 1 General

##### 1.1 Scope

This part of IEC 60947 series provides additional requirements to those given in IEC 60947-5-2. It addresses the fault performance aspects of proximity devices with a defined behaviour under fault conditions (PDDB). It does not address any other characteristics that can be required for specific applications.

This standard does not cover proximity devices with analogue output.

This Standard does not deal with any specific requirements on acoustic noise as the noise emission of control circuit devices and switching elements is not considered to be a relevant hazard.

For a PDDB used in applications where additional characteristics, dealt with in other standards, are required, the requirements of all relevant standards apply.

The use of this standard alone does not demonstrate suitability for the implementation of any specific safety related functionality. In particular, this standard does not provide requirements for the actuation characteristics of a PDDB, or for means to reduce the effects of mutual interference between devices, e.g. coded targets. Therefore these and any other application-specific requirements will need to be considered in addition to the requirements of this standard.

NOTE 1 Due to their behaviour under fault conditions, PDDBs can, for example, be used as interlocking devices (see ISO 14119).

NOTE 2 The requirements for electro-sensitive protective equipment for the detection of persons are given in the IEC 61496 series.

##### 1.2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60068-2-1:2007, *Environmental testing – Part 2-1: Tests – Test A: Cold*

IEC 60068-2-30:2005, *Environmental testing – Part 2-30: Tests – Test Db: Damp heat, cyclic (12 + 12 h cycle)*

IEC 60529:1989, *Degrees of protection provided by enclosures (IP Code)*  
Amendment 1:1999

IEC 60947-1:2007, *Low-voltage switchgear and controlgear – Part 1: General rules*  
Amendment 1:2010

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**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**